

WHAT IS CLAIMED IS

1. A method for testing an integrated circuit containing hardware and/or software parts having a confidential nature, using a tester, wherein this method comprises the steps of :

- in said integrated circuit:
  - 5 generating a random number,
  - ciphering this random number using a key stored in said integrated circuit via a ciphering algorithm to obtain a first password, and
  - sending the random number to said tester,
- and, in said tester:
  - 10 ciphering in parallel said random number received using a key identical to that used in said integrated circuit via an identical ciphering algorithm to that implemented in said integrated circuit, to generate a second password, and
  - sending said second password from the tester to said integrated circuit,
- then, in said integrated circuit,
  - 15 comparing said first and second passwords,
  - freeing a test path leading from said tester to said parts of a confidential nature, only if the comparison establishes a match between said first and second passwords, and
  - effecting the test of said elements of a confidential nature.

- 20 2. A method according to claim 1, wherein it also comprises the steps of :
- in said integrated circuit:
    - ciphering said random number using said key stored in the integrated circuit via said ciphering algorithm to obtain a third password;
    - sending said third password to said tester;

25 and

- in said tester:
  - ciphering said random number received using said key stored in said tester via said ciphering algorithm to obtain a fourth password;
  - comparing said third and fourth passwords; and
  - 30 authorising the ciphering of said second password via said tester only if there is a match between said third and fourth passwords.

3. A method according to claim 1, wherein it also comprises the steps of :
- in said integrated circuit:
    - ciphering said random number using said key stored in the integrated circuit
    - 35 via said ciphering algorithm to obtain a third password;

8. An integrated circuit according to claim 7, wherein it includes means for storing said first calculated password, said storage means being placed before the

comparison means to provide them said first stored password at the moment of comparison with the second password.

9. An integrated circuit according to claim 7, wherein the means for storing the cipher key are an EEPROM memory which also includes a redundancy unit check.

5 10. An integrated circuit according to claim 7, wherein the processing means are provided for calculating a third password using the cipher key, from the random number generated and the circuit cipher algorithm, said third password being intended to be sent towards the exterior with the random number to a specific tester.

10 11. A tester for integrated circuits including hardware and/or software parts having a confidential nature, this tester including means for effecting a proper working test of said hardware and/or software parts to route the corresponding data to said circuit, wherein it includes:

- means for receiving a random number generated by an integrated circuit to be tested;
- 15 - means for storing a cipher key;
- processing means for calculating a second password from said cipher key and from the received random number, using a cipher algorithm, and
- said processing means being connected to said routing means for sending said second calculated password to said integrated circuit.

20 12. A tester according to claim 11, wherein said processing means are also arranged to calculate, using a cipher algorithm, a fourth password from said cipher key and from the received random number;

wherein said means for receiving said random number are also arranged to receive a third password calculated in said integrated circuit, and

25 wherein it also includes comparison means to check the match between said third received password and said fourth calculated password, said processing means only being authorised to calculate said second password if the comparison means observe a predetermined match between said third and fourth passwords.

13. A tester according to claim 11, wherein:

- 30 - said means for receiving said random number are also arranged to receive a third password calculated in said integrated circuit, and
- said processing means are also arranged to recalculate a random number using a reverse cipher algorithm, and from said third password calculated in said integrated circuit and from said cipher key; and

35 wherein it also includes comparison means for checking the match between said received random number and said calculated random number, said processing

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means only being authorised to calculate said second password if the comparison means observe a predetermined match between said random numbers.

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